Company Profile

McDonnell Douglas

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MCDONNELL DOUGLAS
INFORMATION SYSTEMS INTERNATIONAL

Aerospace giant plans top flight computer empire

PRESIDING over a family business worth around $9 billion might seem career enough for one person. But not for John McDonnell, boss of the aerospace giant McDonnell Douglas. He is now building a second empire; this time in information systems.

He has set himself the goal of creating a $4 billion business by 1990, and of making the McDonnell Douglas name as well-known for computers as it is for aeroplanes.

McDonnell is not, of course, starting from scratch. He already owns computer companies which turned over $556 million in 1983. McDonnell Douglas Automation Company, or McAuto, is one of the biggest IBM users in the US with a total of 277 megabytes of main storage.

In the computer room on the McAuto Campus at St Louis, IBM boxes stretch to the horizon. Apart from bureau services, the company specialises in Cad/Cam – under the Unigraphics name, and provides software for various sectors, such as health, transport and telecommunications.

The second portion of McDonnell's existing computer portfolio is the minicomputer manufacturer, Microdata Information Systems Group. Microdata, which has its biggest base in the UK, was acquired by McDonnell Douglas in the mid-1970s.

But until 1983, computers were very much a secondary part of McDonnell Douglas's total business. In that year, McDonnell, along with Bob Fischer, head of McAuto, and Gary Liebl, head of Microdata, took a close look at what was happening in the information systems market. "We foresaw a coming shakeout and decided we should either get bigger, or get out," says McDonnell.

Before the beginning of 1984 the company had committed itself to aggressive growth in the information systems market. Early in 1984 McDonnell Douglas Information Systems Group was formed.

Since then it has acquired all the pieces it needs to launch McDonnell's grand plan. By the end of 1984 these acquisitions took McDonnell Douglas Information Systems Group to a $1 billion company with 12,000 employees.

We decided we should either get bigger or get out

"This is a group of independent yet interdependent companies, with each one having a very focused charter and strategy," explains McDonnell.

"It consists of a set of vertical companies, each aimed at a particular single market, like health care, financial services or manufacturing industry, plus some horizontal businesses, which provide a product or service that is used across many industries and also would be a resource to our verticals."

The strategy of producing very focused business units has involved more than a Gestalt Switch. Rather it has involved major surgery. McDonnell has cut his information systems business to pieces.

He has chosen the vertical markets he wants to shape his company for, and then gone out and bought the pieces of the jigsaw he needed to produce solutions oriented vertical market businesses.

There are three large horizontal businesses in the McDonnell Douglas Information System Group. One is the Tymnet value added telecomms network which the Information Systems Group got when it bought Tymshare for $300 million last May.

McDonnell views Tymnet as a horizontal business in its own right, but he is also expecting it to be incorporated into the offerings of the other McDonnell Douglas Information Systems Group businesses as a value added service.

The second horizontal is Microdata – or as McDonnell wants us to get used to calling it – McDonnell Douglas Computer

McDONNELL . . . Shakeout.

McDonnell Douglas wants to make itself as well-known for computers as it is for aeroplanes. Nuala Moran went to the company's world headquarters in St Louis to talk to John McDonnell, president of this $9 billion family firm, which was founded by his father, to find out how he plans to make this happen

Systems Group. Again McDonnell expects Microdata to continue to address a broad span of markets in its own right, and to provide the engineering and manufacturing function within the vertical businesses.

But this is not to imply that all the companies in the McDonnell Douglas Information Systems Group will use Microdata hardware.

Setting up the McDonnell Douglas Information Systems Group has increased the status of the UK end of the business. This is because the third horizontal business is McDonnell Douglas Information Systems International, which is headquartered in Microdata's offices in Hemel Hempstead.

McDonnell Douglas Information Systems International is the overseas distributor for all the products and services of McDonnell Douglas Information Systems Group.

Senior vice-president of McDonnell Douglas Information Systems International is Jerry Causley, former managing director of Microdata UK. Causley presides over country businesses in Europe, the middle east and the far east.

Currently a $100 million business, Information Systems International is forecast to become an $1 billion giant by 1990, with most of this growth coming from the UK.

John McDonnell says there will not be any more horizontal businesses in McDonnell Douglas Information Systems Group. Tymshare was a major acquisition both in terms of price, and of integrating it into the existing business, and McDonnell says he does not envisage any more takeovers of this size.

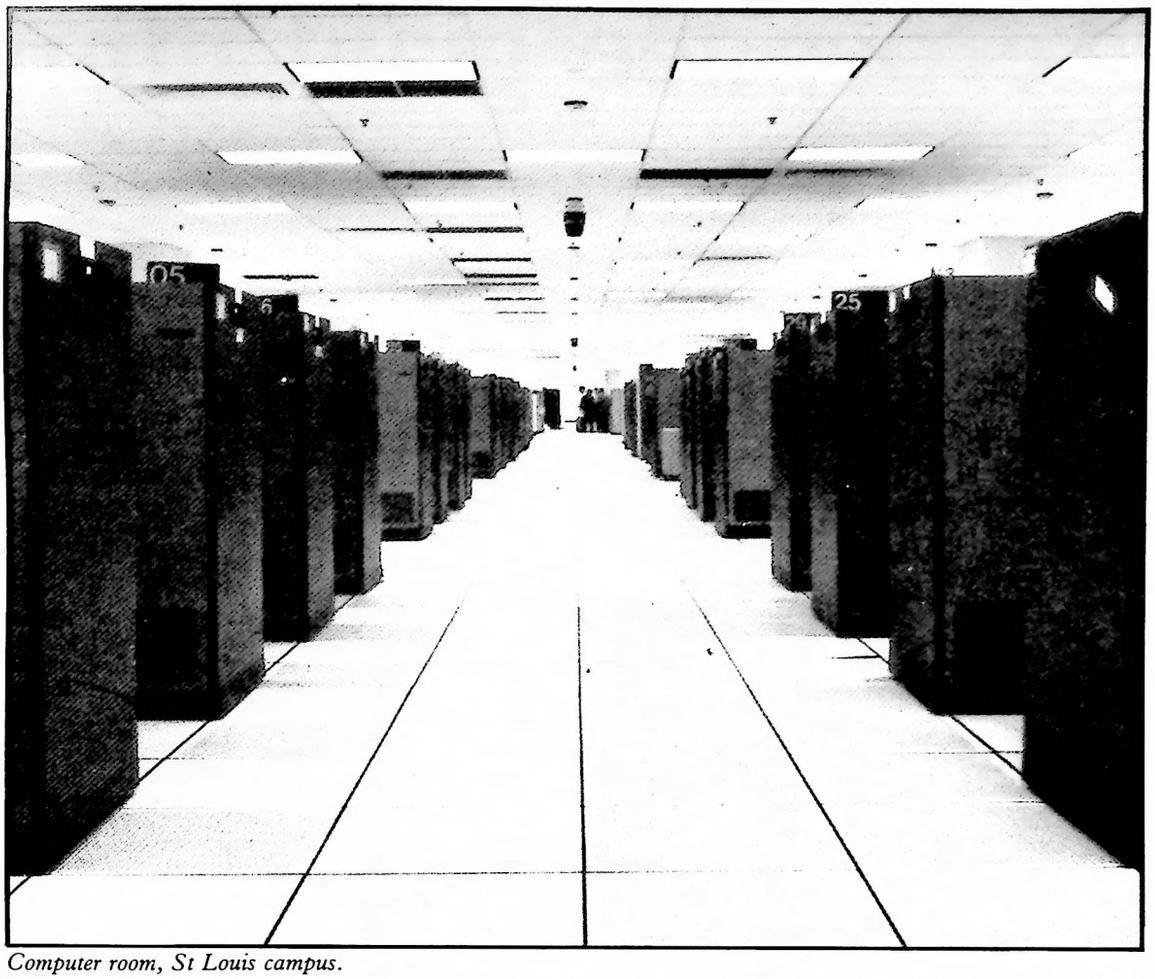
Of course McDonnell Douglas's aerospace business still needs access to computing, and so the Information Systems Group has formed a separate division, McDonnell Douglas Information Services. This division will provide $200 million of services at cost to the aerospace company.

The plan is that eventually McDonnell Douglas Information Services will be hived off to the aerospace side, severing the only business connection between McDonnell's two empires. McDonnell says he is not looking for any market synergy between the two companies. But he does have an interest in promoting synergy on the technology front.

"For instance," he says, "The Cad/Cam area is one where, from a technology point of view, we could be looking at some synergy."

In the middle of the St Louis campus is a brand new chip manufacturing plant. "This was set up for aerospace but we do look at it as something that could be applicable in information systems," says McDonnell.

Now, the requirement for leading edge custom chips is not as great in information systems as in aerospace. I would think within five years it may well be used quite a bit by the Information Systems Group, where we want to design a particular custom chip for our systems to help us differentiate our capabilities from some other company."



Computer room, St Louis campus.

The Cad/Cam area is one where we could be looking at some synergy

To date, McDonnell has chartered two of the vertical market businesses of the Information Systems Group. The others are being worked out at the moment and the final strategy will be announced in July.

The best example of a vertical is McDonnell Douglas Health Systems Group which has been formed mainly from parts of the former McAuto. "This is the area of the company that has been acquiring most in the last 12 months, because it has a strategy and is filling in the holes.

"Where it doesn't have a particular market presence or capability, the Health Systems Group has made decision on whether to make or buy that capability."

The second vertical in place is McDonnell Douglas Communications Industry Systems which provides solutions to telephone companies such as the ex-Bell Operating Companies, Western Electric and AT&T.

"To date we have really only applied McDonnell Douglas Communications Industry Systems in the US, whereas we are attempting to market McDonnell Douglas Health Systems in a number of areas around the world." Health Systems has already been launched as a separate company in the UK.

"The other main verticals, which we are in the last few weeks of coming up with strategies for, are the manufacturing industry which is centred on our Cad/Cam capability, financial services, and wholesale and retail distribution."

McDonnell has had task forces devising the strategies for these vertical market companies for several months. These task forces consist of senior managers who have been taken away from their normal duties to work on the vertical market plans.

Targeting vertical markets involves examining the size and growth possibilities of a sector in relation to McDonnell Douglas's existing capabilities.

"Take health as an example," says McDonnell. "The projection for the secondary systems part of healthcare is a growth rate of over 20% per annum with a size out in the late 80s of between $8-$12 billion in the US."

"As for our own capabilities – in the old McAuto they had a health services division that was far and away the largest in the industry, and represented almost half of McAuto's total commercial activities."

McDonnell Douglas also owned a company called Vitek, which is in the automated medical diagnostics field. The strategy devised by the task force aims to capitalise on this existing strength and broaden it further.

So, McDonnell Douglas has taken over several companies that round out the whole industry approach. For example, a Los Angeles company called Science Dynamics.

"What Science Dynamics had was an IBM-PC based system for doctor's offices. Our existing market was basically the hospitals, but part of the overall strategy was to get into doctor's offices and then tie the two together."

Tapes.

Aerospace giant empire

Another aspect of the Health Systems Group is medical claims clearing. "This will act as the go-between for the providers, the users and the payers in settling all medical claims," says McDonnell.

Ownership of Tymnet is crucial in developing this kind of whole industry strategy. McDonnell Douglas could, of course, buy time on someone else's network to link together all the elements of the health industry, but it would not have the same degree of control.

Another sector where ownership of Tymnet is a prerequisite to building a successful business is in financial services. In fact, most of McDonnell Douglas's existing abilities in this area came with the acquisition of Tymshare. McDonnell Douglas did have one existing offering, Telecheck, a cheque guaranteee system, which will now be offered via Tymnet.

Communication is the essential ingredient

In the manufacturing industry, the focus of the Information Systems Group strategy will be Cad/Cam. "Cad/Cam is our major capability and there is high growth in this area now, so that will be the centre piece of any strategy," says McDonnell.

McDonnell Douglas has also targeted wholesale and retail distribution, despite the fact that it has no particular strengths in this area. It chose it because there is very little competition in this market.

"This looks like an area that is still wide open," says McDonnell. "Distribution sounds fine, but there is no distribution industry as such. There's electrical distribution, automotive distribution, etc, and all sorts of distribution channels.

"This is one business where the Information Systems Group is starting a little more from zero, in the sense that we do not have a lot of business specifically aimed at the area now."

Microdata in the US does have a fair percentage of users in the distribution business but they are not necessarily using industry specific systems. So, in setting up a distribution business, the Information Systems Group has less of a base on which to build than in its other verticals.

"On the other hand there are also fewer constraints," says McDonnell.

The Information Systems Group has some grounding in all the vertical markets it has targeted, but how did it pick them?

"We set up task forces with six top people in each," explains McDonnell. They were pulled out of the management structure to devote six months or more to developing a strategy.

"These people are studying the market to determine where it is going, what services people think they will need, what are our capabilities, how to make use of Tymnet and how to make use of our hardware and software capabilities."

The task forces have approached the definition of vertical markets by analysing markets and then looking at the Information Systems Group abilities, and assessing how one can be bent to fit the other, and what capabilities McDonnell Douglas would have to buy.

McDonnell cites the existence of a reasonable pool of acquirable companies as one of the key factors in taking on a particular vertical market.

"One of the main criteria we're applying to picking vertical markets is the importance of having a value added network and how it can be used to give us a competitive advantage.

That was one reason we selected distribution as a sector to look at. It looked as if Tymnet could give us great potential there as it does in financial services."

Tied to all these vertical market companies is McDonnell Douglas Information Systems International. One of the other factors in picking vertical markets is to go for ones that look as if they will have worldwide application.

"McDonnell Douglas Information Systems International has a basic role as the international distributor. It is tied to our other business units and it is just there to market the products and services of our other units. However the other units are tied to them because they've got to market through our international company."

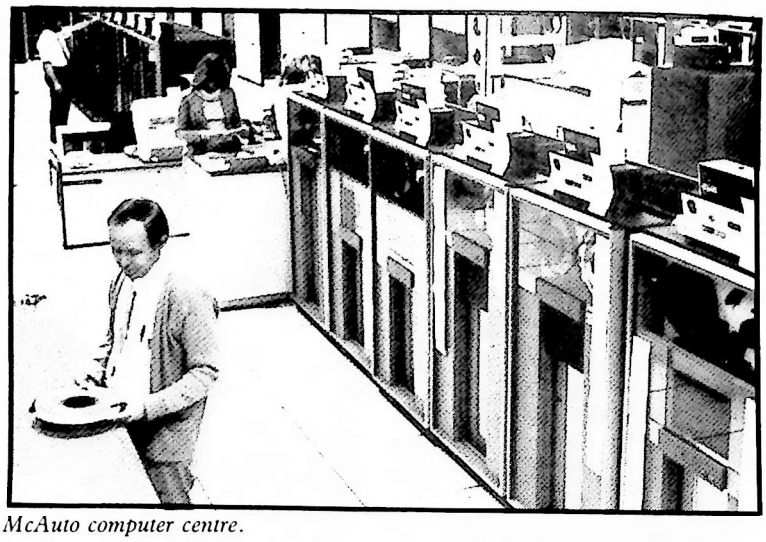
Within this framework, McDonnell Douglas Information Systems International will determine how these products and services are marketed in each country, which are the most appropriate for that particular country, and also be responsible for making changes to products to fit them to the markets of the country.

But McDonnell Douglas Information Systems International will make acquisitions to round out capabilities. For instance, it has recently taken over architectural Cad experts Applied Research of Cambridge, in the UK.

It is also in the process of making another acquisition in Europe of a company that markets a health system which will round out the capabilities of the Health Systems Group in that country.

The International Group will determine what is needed in specific countries to enable the marketing of the products there.

"Our whole approach to international markets is one of making the country manager the key figure, as opposed to the product managers in our vertical businesses," says McDonnell.



McAuto computer centre.

But country managers will be expected to collaborate with the vertical businesses to work out how to address national markets. This policy was developed to ensure that product expertise is not overlooked.

We have to look for advantages in particular parts of the market

The Information Systems Group has not set aside a certain amount of money to pay for acquisitions. "It's really a question of whether it's better to develop the capability or acquire it, but the intent is not to have any more significant acquisitions."

The whole of the McDonnell Douglas Information Systems Group Strategy rests on a model McDonnell Douglas has developed which forecasts the future shape of the computer industry worldwide.

According to the model, there will be three horizontal groups, or tiers, which can be used to categorise all the companies in the business.

In the first tier there will be between five and seven enormous companies offering full lines of equipment and service worldwide, for example, IBM and AT&T. These companies will be so big that they will not be able to take advantage of every opportunity that arises. But their massive size means they will be low cost suppliers of hardware.

In the second tier where McDonnell Douglas Information Systems Group places itself, will be large companies that focus on providing integrated solutions to a limited number of carefully selected industries. Other suggested contenders here are Wang, Control Data Corporation, DEC, and Electronic Data Systems (EDS).

The third tier will comprise hundreds of comparatively small software and speciality hardware suppliers, waiting to be taken over by tier one and two companies.

The theory further describes the attributes which are keys to success in the second tier. First is critical mass. McDonnell Douglas puts this at $1 billion annual turnover, a figure it achieved when it took over Tymshare.

Owning Tymshare was also essential to McDonnell Douglas meeting its second criteria for tier two success – proprietary capability. This means having unique, company owned technology which enables the Information Systems Group to offer its customers integrated solutions that nobody else can match.

Communications is the essential ingredient because it makes integration possible.

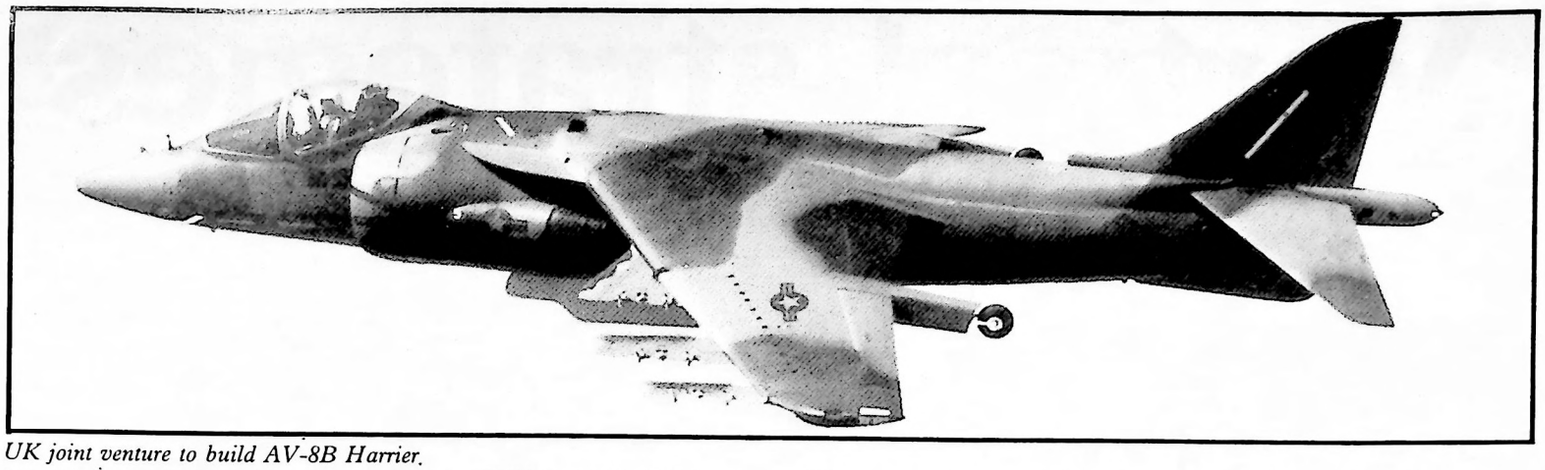
The third requirement for success in the second tier is to be market leader in supplying the limited number of industries singled out for the attentions of McDonnell Douglas Information Systems Group.

But how realistic is it to base a marketing strategy on a neat philosophy which pictures the Information Systems Group, having carefully selected its areas of interest, in a competitive vacuum?

John McDonnell acknowledges this point. He realises that it is impossible not to have to compete, even though Information Systems Group has picked its markets to steer as wide a course as possible round the competition.

But he insists that even though it is impossible to avoid IBM, for example, in the marketplace, it is possible to avoid head on competition.

"Take Cad/Cam as an example. IBM is not strong in applications software. They don't see it as their strength. They do market systems with software but they



UK joint venture to build AV-8B Harrier.

bought that software, they didn't develop it themselves."

McDonnell Douglas has a value added reseller agreement with IBM to put software on IBM hardware. "I would say that if all other competitors were putting their software on IBM hardware, IBM would lose some interest in providing the turnkey solutions themselves. So in a sense I think IBM is in Cad/Cam software from a defensive point of view.

"In the end they're trying to make sure their hardware is really being used.

"This does not mean that we won't be competing with them, in that there won't be an overlap between the first tier and the second tier. But from a conceptual point of view, IBM's main thrust is going to be selling hardware; our main thrust is going to be selling solutions in particular industries.

The name should be a positive thing in the UK

"In every field there's going to be some IBM presence. The issue is what thrust they are making outside the hardware."

One of the criteria that the Information Systems Group is applying in devising its market strategy, is to pick areas where it will not clash with IBM or other big competitors.

"This means we have to look for advantages in particular parts of the market which the competition doesn't have.

"If we see we're in a market where we're going to be head to head with some really powerful major competitor that's definitely a negative."

McDonnell Douglas Information Systems Group as the scion of McDonnell Douglas Aerospace has an obvious similarity of background with Electronic Data Systems, the information systems arm of car giant, General Motors. But, says McDonnell, that is where the similarity will end.

"General Motors is going into the manufacturing field but this will be on the basis of its hardware, with information systems being a piece of that offering. We're really approaching manufacturing with information systems as the major part of our offering.

"For instance, General Motors is in robotics. We don't intend to be. We'll provide, as we do now, the software to operate the robots but not the robots themselves."

The UK is very important to John McDonnell's strategy for the Information Systems Group. Outside the US, the UK is by far its strongest market, with two-thirds of international sales.

In fact, from the point of view of hardware, the Information Systems Group is stronger in the UK than the US, because of the strength of Microdata. This was one of the major factors in the decision to put the headquarters of McDonnell Douglas Information Systems International in Hemel Hempstead.

The management of Microdata UK have taken pole positions in Information Systems International. "The UK is where we have the proven management team," says McDonnell.

McDonnell sees one of the first tasks of the International Group as planning for as strong a position in the UK with the vertical market companies as it has with Microdata. Because, he says, "The UK is clearly our strongest base."

McDonnell is hoping that the change from Microdata to the McDonnell Douglas name will boost the company in the UK. "The name should be a positive thing in the UK because McDonnell Douglas has lots of joint ventures with UK firms in the aerospace field.

"One of the reasons for making the changes is so that customers realise the resources and strengths that are behind Information Systems International."

Looking back on the changes that have taken place in the last two years, McDonnell says that the formation of McDonnell Douglas Information Systems Group was a logical development. "By the end of 1983 it was obvious that we should make information systems a major thrust, both because it fits from a McDonnell Douglas point of view, and because the industry is one that has a lot of potential."

But despite this potential, McDonnell says the computer industry is, "Pretty unforgiving. If you don't know what you are doing in it and you don't have a very focused strategy you're not going to last long. There's too many very capable competitiors out there."

McAuto facilities, St Louis campus.

Vertical strategies are still to be completed

An excursion around McDonnell Douglas's vertical market companies highlights the main facets of the company's ambitions in each area. The strategy is not complete in all areas because McDonnell Douglas still has some decisions to make on precisely how the companies will attack their markets

McDonnell Douglas Health Systems Group

IN building up this business, McDonnell Douglas intends to buy and run hospitals – rather a long way to come from providing computer systems.

The Health Services division of the former McAuto was a long time leader in providing hospitals with systems for patient care and financial information, and McDonnell Douglas has added other companies to round out the capabilities of the Group. This was the first of the vertical market groups to be established and it was recently launched in the UK.

Bob Fischer, ex-head of McAuto and now vice-president of the Information Systems Group, says this will be the biggest single business spawned from McAuto, with a turnover of $1.5 billion by 1990. It is currently a $250 million business.

There are four strategic thrusts to the business. Health Systems Group will be the largest US supplier of information systems to hospitals, care facilities and physicians.

It will build this capability on McAuto's existing strengths in hospitals and clinics, and on the strengths of a recently acquired company, Science Dynamics.

Science Dynamics has 30,000 doctors using an IBM-PC based system for running their surgeries.

The major service of the Health Systems Group is a financial control system that provides hospitals with immediate access to accounting and patient information billing, via McDonnell Douglas's St Louis operating centre.

The second arm of the Health Group is diagnostic systems. Here there are two companies, Vitek and Bactomatic, which specialise in automated systems for identifying bacteria.

Vitek's Automicronic System which is already in use in 400 hospitals in the US, is claimed to be able to identify bacteria up to 80% faster than using conventional manual recognition techniques. Bactomatic provides a similar application.

McDonnell Douglas also holds a 21% interest in American Monitor Corporation of Indianapolis which manufactures blood diagnostics and related equipment and is also making substantial investments in developing new automated diagnostic methods.

The biggest single business spawned from McAuto

The third thrust will be in alternative health care organisations. McDonnell Douglas owns a 55% stake in a New York City-based company, Sanus, which it helped to set up. This company consults only, helps set up, installs and operates Health Maintenance Organisations (HMOs).

HMOs are a pre-paid type of health care arrangement which are developing in the US. A group of doctors and hospitals participate in an HMO, which is thus able to offer a full range of medical services.

Based on a monthly fee, customers get all the health care services they need. This type of health care is offered via companies to employees, rather than through an insurance policy. McDonnell Douglas has plans to set up HMOs in St Louis, Dallas and Houston.

The next step will be for McDonnell Douglas to buy and run a hospital. Fischer says he expects McDonnell Douglas Health Systems to add a hospital to its portfolio before the end of 1985. He says this is an attractive proposition because of the major upheaval in health care in the US now.

"There's a pressure on costs. New information systems will allow the hospitals to provide the care required and to make money in the process, through more efficient management."

Fischer does not think there is anything unusual in an information systems company deciding to run hospitals. "Information will be at the heart of what will make hospitals profitable."

Tying all these strands together will be a health claims clearing system. "On the basis of our ownership of Tymnet, our very strong position in hospitals and our claims handling experience, we want to become the electronic health claims clearing group for the US," says Fischer.

"There are about 50,000 people and institutions providing health care in the US, and 1,500 organisations paying for it. We want to become the electronic medium for getting providers to submit their claim."

In providing a complete solution, Fischer is aiming to interconnect all the people involved in the health care business in the US, including hospitals, doctors, HMOs, labs, insurance companies and government agencies. "This will enable us to get certain strategic benefits you won't get doing it piecemeal," he says.

McDonnell Douglas is attracted to the health area because none of the competitors in information systems are in there aggressively.

McAuto's existing base in providing hospitals with financial and records systems also makes it an obvious sector for the attentions of the Information Systems Group. And the potential for capitalising on the ownership of Tymnet is highlighted in the strategy Fischer has devised for the group.

McDonnell Douglas Communications Industry Systems

This is currently a $100 million company specialising in providing information services for telephone companies. Fischer says: "We are still deciding whether or not this will be a $1 billion business by 1990.

"We want to be the largest independent supplier of systems to AT&T, Western Electric and the Bell Operating Companies."

McDonnell Douglas took three existing groups with relevant experience and products and put them together to form Communication Industry Systems. These were recently acquired Computer Sharing Services, parts of the old McAuto, and parts of Tymshare.

"Divestiture of AT&T has increased our opportunities in this market. In the past lots of the Bell operating companies relied on Western Electric and AT&T for systems. Now they want systems of their own because they are in competition," says Fischer.

"Communications Industey Systems has the ability to cover everything from engineering operations to business. We have one well integrated company covering the whole industry."

Building this integrated company depended on buying Computer Sharing Services of Denver which cost McDonnell Douglas $69.2 million, in January 1984. No more acquisitions are planned for this group, but Fischer says

there may be some small pieces that need to be fitted in to round out the strategy.

A task force has recently visited Europe, looking at prospects for Communications Industry Systems, and assessing its market potential there.

Services provided by Communications Industry Services include materials and manpower budgeting and forecasting, various measurement systems, inventory, service order processing, operator scheduling and operational statistical data.

Using CSSnet, a customised network for timesharing customers, the company also offers resources management, service and repair measurement, inventory control and workforce management.

McDonnell Douglas Manufacturing Industry Systems

The foundation of this company will be the $600-$700 business McDonnell Douglas already owns in Cad/Cam. Its best known products are Unigraphics workstations and Cad/Cam software.

The company also supplies software and turnkey systems for design, drafting, solid modelling, schematic modelling, printed circuit board design, finite element modelling, direct numerical control and robotics.

Fischer says that to complete its offering in manufacturing systems the company needs to get into materials requirements planning, factory floor communication systems, automated materials handling equipment and local and wide area networks to link it into integrated manufacturing systems.

Existing experience in Microdata and Tymnet will help Manufacturing Industry Systems develop an edge on the communications front. But Fischer says that the company will not necessarily use Microdata hardware in building its turnkey solutions. He says that IBM will still make "the lion's share" of the systems that are used.

"We are only going to build those unique pieces of hardware that are necessary to come up with a fully integrated system that has a lot of value."

Existing UK users of McDonnell Douglas Cad/Cam equipment include Cranfield Institute of Technology, Baker Perkins, and Plessey, so there is a user base of important companies to build on when developing this market in the UK.

McDonnell Douglas Financial Services Group

A taste of the future in financial services can be gained by looking at the capabilities McDonnell Douglas is aiming to unroll through this part of its business.

FISCHER . . . Profitable.

Financial Services currently earns McDonnell Douglas $150 million a year. There are three strands to the business, Telecheck, a nationwide cheque guarantee service, Telecredit, which provides a means of validating credit cards, and banking, tax and insurance systems.

The plan is to build this into a $1 billion business. Jerry Causley sees Telecheck as a major opportunity for McDonnell Douglas Information Systems International in the UK with the growth of point of sale systems. The UK offering will be based on Tymnet technology.

Telecheck already offers a nationwide service in the US. Merchants accessing a central database via phone or terminals can check a negative file to see if they have been passed a "dud" cheque. If there is no record, McDonnell Douglas guarantees payment of the cheque.

The same applies for credit card transactions when the credit card has been validated against a negative file via the Telecredit network.

The Financial Services group also has a small banking systems company in Birmingham Alabama, and an international banking and investment system developed by Tymshare. Users of this system include the security house Drexel Burnham, and leading French bank, Credit Agricole.

There are also two tax processing companies in the group, Dyntax and Unitax, and several insurance systems.

Tymnet is a crucial part of the strategy for the Financial Services Group because its offerings all depend heavily on networking.

McDonnell Douglas Distribution Company

No firm decision has been taken on how this part of the company will be developed yet. McDonnell Douglas is attracted to this sector because there are very few competitors.

The company could build a strategy on the basis of software and turnkey products that McAuto has in the transport and distribution business, like Freight Rating and Routeing, and Freight Bill Audit systems. Microdata also has experience of this market in the US through some of its OEMs.

McDonnell Douglas Diversified Industry Systems

This is a collection of all the McDonnell Douglas companies that have no conceptual fit with the vertical market groups. This group will serve all the industries that have not been targeted to be separate businesses.

These include architectural, engineering and construction products and services, professional services, and general purpose remote computer services.

Fischer says that McDonnell Douglas expects this part of the business to grow but not as rapidly as the other verticals. "Its primary mission is to generate profits and fund the other businesses we're involved in."

McDonnell Douglas has acquired Applied Research of Cambridge, a UK architectural Cad house for this part of the company. Another important piece of this group is Electronic Data Interchange (EDI), a business that specialises in providing packages for computer to computer communications.

This capability will be applied across a wide range of industries such as the food and grocery trade, to connect suppliers and retailers for the transmission of documents such as invoices and orders.

Causley is excited by the market opportunities for EDI in the UK. A subsidiary was launched in April under the wing of Tymshare UK, and there are plans to establish a joint venture with another UK company to collaborate on standards for exchanging information electronically and help EDI into the UK market.

John McDonnell does not plan to set up more vertical companies. He says he is prepared to retract if experience shows that there is too much competition in any particular market. These are the vertical companies which Causley must market under the McDonnell Douglas Information Systems International banner around the world.

Each country group in Information Systems International will have a capability directed towards nationalising the products and services of the vertical market groups.

Microdata and Tymshare will serve as a resource to these vertical groups, but they will also continue to address their existing markets.

Pole position perspective

MCDONNELL Douglas Information Systems International is responsible for all the group's business outside the US and Canada. All the country units in these territories report through a management structure centred on Microdata's Hemel Hempstead offices.

This is a tribute to the contribution Microdata (now McDonnell Douglas Computer Systems Company) has made to McDonnell Douglas. In hardware terms, Microdata UK is the most important part of McDonnell Douglas's computer related turnover.

Making the UK the international headquarters also highlights the resource McDonnell Douglas recognises it has in the UK management team, many members of which have been with the company since pre-McDonnell Douglas days, in the 1970s.

Jerry Causley, former head of Microdata in the UK, is now senior vice-president of the international group. Causley's successor at the UK group helm is John Howorth, who has also assumed responsibility for McDonnell Douglas Health Systems and Tymnet in the UK.

David Hughes, director of European marketing, who has been with Microdata for 11 years, has been appointed managing director of the former McAuto's buiness in the UK.

David Stears becomes head of finance and administration for McDonnell Douglas Information Systems International, a move from his former post as Microdata's financial controller.

In the McDonnell Douglas scheme of things, Information Systems International may become a $1 billion business by 1990. Causley says it will turnover $100 million in 1985.

It will achieve this growth by forming vertical business units, corresponding to the vertical businesses in the US – but although the products will be same as the US, they will all be nationalised to match each different country market.

Causley says, "These have all got to be self-sustaining business organisations and profit centres, taking products from the Information Systems Group in the US. They will not be involved in the high technology development of products, but in marketing and strategy."

One of the criteria applied by the task forces charged with devising the vertical market strategies was to pick vertical markets that could be applied worldwide.

Microdata will continue to concentrate on its existing vertical markets such as government, libraries, the National Health Service, police and personnel systems, but it will also become a resource to McDonnell Douglas Information Systems Group's other verticals.

This does not mean that McAuto's descendants will no longer be IBM shops. But Causley says Microdata hardware will be adapted where appropriate to fit in with systems marketed by the rest of McDonnell Douglas.

"After all", he says, "what's the point in having your own hardware company and then spending your money on someone else's boxes?"

Causley will also be responsible for developing Tymnet's potential for Information Systems International. Tymnet's overseas marketing was fairly opportunistic in its pre McDonnell Douglas days, so the level of Tymnet derived business varies considerably around the International group.

In the UK, Tymnet's business was limited to setting up five private networks such as British Petroleum's BPNET, based on its proprietary Tymnet engine network nodes.

Each national unit will be a profit centre

Work is now going on to integrate Tymnet technology into the next generation of Microdata hardware. This will allow Microdata kit to sit on any networks regardless of what other machines are on the network.

This refinement will be available in the third quarter of this year. Causley claims that this means Microdata will leapfrog the technology of its competitors, and come up with a true networking architecture. "It also means that we get over the problem of how to support communications worldwide."

Causley views the proprietary networking abilities of Tymnet as a key requirement for success in the next five years. "Tymnet will provide the capability to tie solutions toether," he says.

It is also a stepping stone to developing completely new markets. For example, last month, Causley signed on the dotted line to start a joint venture between Tymnet and the Japanese conglomerate, Marubeni.

The joint venture company will set up a public value added network in Japan with a ready made list of customers who are minority shareholders in Marubeni.

This network will be linked to other national networks via McDonnell Douglas's International record carrier, French Telegraph and Cable Company (FTCC). As an international record carrier FTCC can transmit telex, telegrams, videotex and electronic mail internationally.

It has submarine cable and satellite lines to over 30 countries, plus about 16% of the UK-US dedicated service market and about 70% of the France-US dedicated service market. Its customers include IBM and the United Nations.

Causley believes the combined capabilities of Tymnet and FTCC gives McDonnell Douglas Information Systems International an enviable communications capability, and mean it is well placed to meet the challenge of convergence.

"A new battle is about to start. Standalone boxes will no longer be acceptable and so a networking capability will be essential. We will be able to offer this and also unique interconnections via FTCC."

The first of the vertical market groups has been launched in the UK with the McDonnell Douglas Health Systems Group. Causley is intending to mount a major thrust with this company, which already has significant markets in Ireland, Australia and Japan.

Despite the differences between the National Health Service in the UK and the health market in the US, Causley says there is a lot of common requirement between the US and the UK in applications like pharmacy and lab automation systems.

Across Information Systems International Causley has a blend of horizontal and vertical businesses with varying market penetration from country to country. He sees his major task as welding all these diverse entities together into coherent country units which maximise the synergy between the different components.

Being a realist, Causley knows that his goal of a $1 billion business by 1990 is problematical. "We're worth about $200 million now. On current growth we should reach $500-$600 by 1990. So we will have to add new businesses. But first I have to consolidate the existing resources of the group."

Causley claims that as the US's

CAUSLEY . . . Self-sustaining.

The decision to establish McDonnell Douglas Information Systems Group as a separate entity from McDonnell Douglas's aerospace business is very significant for the UK. Microdata UK has gained a pole position in the new organisation, as headquarters of the international distribution outfit, McDonnell Douglas Information Systems International

number six exporter, McDonnell Douglas knows international trade and understands the importance of having a national focus for the individual national units.

"Each national unit will be a profit centre in its own right." He adds that one important inheritance from McDonnell Douglas's aerospace mentality is a corporate culture which thinks a long way ahead.

Strategic planning for the $1 billion company is now under way. Causley claims an advantage over managers in other overseas subsidiaries because of the short line back to the McDonnell Douglas Information Systems Group Board. He reports straight to vice president Gary Liebl.

The development of Information Systems International will mean more jobs for the UK. Causley estimates about 700 more jobs will be created by the end of 1986. "To get jobs for the UK we have to go out and sell to the rest of the world," he says.

The Microdata name has now officially been written off. But there are no regrets about its demise.

"Going under the McDonnell Douglas banner will help focus the various parts of the business", says Causley. "The Microdata name doesn't help sell Tymshare whereas an advert for McDonnell Douglas will benefit everyone in Information Systems International."

Microdata research for McDonnell reaps rich rewards

THE launch of Microdata's new M6000 minicomputer in January 1985 was testimony to the importance of Microdata UK in the research and development effort of McDonnell Douglas Information Systems Group. The two-year design project was done jointly between Microdata's research teams in Irvine, California, and Hemel Hempstead, UK.

In particular, the M6000 has a UK designed processor, something that Microdata claims distinguishes it from all the other minicomputers on the UK market. Systems software was also developed in Hemel, at the company's new £10 million research facility.

Setting up a joint UK-US project meant it was possible to maintain round-the-clock working. Microdata has a technology transfer link which operates via Tymnet, and this was used to transmit prototype software and data back and forth across the Atlantic at the end of each day.

One of the big advantages of working like this was that the M6000 could be launched simultaneously in the UK and the US.

Gary Liebl, head of Microdata in the US and vice-president of the McDonnell Douglas Information Systems Group, says that the joint research and development is now seen as an important part of the company's strategy.

"The US headquarters typically has more of a prevalent influence than it should, because there is a tendency to respond to national markets."

"We are attempting to take a worldwide view, and doing joint research addresses the parochialism that can creep in."

Joint research and development also means less need to modify products when they are introduced to different national markets.

Liebl says that the Information Systems Group intends to build on this approach so that, "worldwide markets are taken into account before any engineer puts pen to paper".

"This is a difficult thing to accomplish. You have to do fundamental things to the corporate culture to make it happen."

Dividing up research and development between the US and the UK is also intended to show McDonnell Douglas's commitment to the EEC.

Taking a worldwide view.

Each of the horizontal and vertical businesses within McDonnell Douglas has its own research and development so that each unit is as close to its market as possible.

To ensure that the whole company gets the maximum benefit from this spending, Liebl has just authorised a new R&D steering committee, where the heads of all the McDonnell Douglas Information Systems Group R&D meet

Research and development is one of the areas where Microdata has proved to be of great importance to the McDonnell Douglas Information Systems Group. With research teams working in Irvine, California and Hemel Hempstead, UK, the company has found that this joint R&D has many advantages. Notable is the M6000 minicomputer project, where a simultaneous launch in the US and UK was possible. Gary Liebl, head of Microdata in the US, and vice-president of the McDonnell Douglas Information Systems group, speaks of this important part of the company's strategy

each month for two or three days.

"The idea is to look for synergism in the group," explains Liebl. He argues that in this way people get used to sharing applications and helping each other, leading to the best application of the collective technology.

In addition, an advanced technology exploration group has been set up, funded by all the other R&D groups. This does work on behalf of the whole of McDonnell Douglas Information Systems Group, in areas like artificial intelligence where it makes sense to pool resources.

This group will be based on 30 staff in an existing group in St Louis. There will also be members of the team based in Microdata in the UK and Irvine, California, and in Tymshare at Cupertino, California.

In 1985 this exploration group will have 50 people with a budget of $5 million. Liebl says this budget will increase once he is sure the concept makes sense.

New R&D steering committee.

Worldwide markets are taken into account

"We have got to make some investment in technology without being able to judge our success in the traditional ways. If we are going to be opportunistic we need an entrpreneurual environment which allows the technology to run wild.

"If on this basis you get 10 ideas, eight of which are bad, that's fine. You've still got two ideas, one of which will be very good, and the other will be dynamite.

"This is where you get the technological breakthroughs that really transmit into product superiority."

Directing the R&D effort of a company as large as McDonnel Douglas Information Systems Group requires a light hand on the tiller.

"We are trying to walk a very fine line. We want the individual busineses within the group to have a lot of identity and a lot of ability to prosecute their markets without being burdened by being part of a large company.

"But at the same time we do not want the benefits that come from being part of a large company."

Liebl also wants to take advantage of synergism between the information systems company and the aerospace business of McDonnell Douglas. In the market the two companies hardly ever see each other, but in technology Liebl says there are some opportunities, albeit limited, for transfer between the two companies.

One of the most likely areas for synergism would seem to be between information systems and microelectronics, the aerospace company's new custom chip facility.

"Actually we're having problems finding this synergy because Microelectronics does custom chips that are incredibly high cost and offer extremely high reliability. We deal with low cost, high production chips which we use in vast quantities." But he says Microelectronics will be asked to help in chip evaluation.

Microelecgronics also specialises in Artificial Intelligence, and Liebl expects to cooperate with Information Systems Group's artificial intelligence research team.

McDonnell Douglas Information Systems Group will also buy technology if it decides this is faster than developing the capability itself. The most striking example of this was its acquisition of Tymshare for over $300 million in May 1984.

The main motivation was to get hold of the Tymnet value added network, and the networking technology of the company.

Buying companies to acquire their technology is not as straightforward as it seems, according to Liebl. "Buying companies is like a courtship. You have to give companies a chance to get acquainted and learn the eccentricities of each other's behaviour.

"The people that come with a company are the experts in that business. If you go into an acquisition the wrong way and people leave, what are you left with?"

On the basis of this philosophy Liebl did not make any immediate changes when he found himself in control of Tymshare. "We're making changes now, a year later, but Tymshare's top management have participated in this. They have pride of authorship because we asked them to work out a strategy with us."

Merging the individual McDonnell Douglas companies to form the Information Systems Group means it is necessary to reposition Microdata so that its sister companies can make the most use of its technology.

Microdata hardware will be made compatible with IBM and DEC and possibibly other hardware too, so that it can be incorporated into the turnkey solutions sold by the vertical markets businesses.

Microdata will also take over manufacturing for the whole Information Systems Group.

LEIBL . . . Synergism.

Seal of success

Much of a computer company's success depends on its reputation. This is understandable; only 30% of the cost of a system goes on hardware. The rest is taken by software, back-up and service, largely matters of subjective judgment. Andy McElroy asks some Microdata users for their views on the system

ASKED why he was happy with his Microdata installation, one data processing manager said: "They're a great bunch of guys to deal with. Great sense of fun. It's always a pleasure to have them around."

Other users agreed. Wendy Hatton, who runs an installation of 6-5400s and 1-8500 and who is also secretary of the users group, CUMAC, says: "There probably isn't anyone to touch them in their field.

"The kit's good and reliable and we've had very few reasons for complaint. When it's needed, service and back-up are excellent, although through CUMAC I've heard that they've taken a hammering on their software support."

In the markets it moves in Microdata needs a reputation for good back-up. It services a total of 114 local authorities, most of them small and with limited experience of computing.

But it offers a good service, according to David Vaughan-Johnston of ICI's pension fund computer department.

"We've been dealing with Microdata and CMC (taken over by Microdata) for seven years, and we've always found its software excellent.

The kit's good and reliable. We've had very few reasons for complaint

"They're Pick-based machines, and that's the operating system that you need if you want to get a system up and running quickly, with a limited number of trained staff.

"For example, at pensions in ICI we administer all the aspects of the fund for individuals: we don't get involved in investment, which is handled by another Microdata installation at the Millbank HQ.

"On top of admin we handle 110,000 pension payments a month with three professional computing staff, including me.

"We've taken staff who know about pensions and turned them into programmers and systems staff. Very much easier than doing it the other way round, when you're operating in Pick. And the system's very reliable. We've had no down-time for seven months."

Such euphoria isn't exactly universal. We rang Johnson Matthey Bankers to gauge the reaction of the financial world: "Perhaps we're a poor example. We're phasing Microdata out and replacing it with a Vax-based system." He wouldn't be drawn on the reasons.

But if that one representative of the banking world is less than happy, the police, very demanding of DP installations, are reservedly enthusiastic.

A senior police computer man can't think of anything adverse to say about it. "It's a very good installation with excellent support. Microdata is a very reliable company." he says.

This is a view that's shared by many police forces, some of which are looking forward to the Microdata version of Holmes (Home Office Large Major Enquiry System), recently approved – with requests for three minor changes in the package – by the Home Office.

Microdata's penetration of the police market is rather unexpected as it has no track record in police work in its native America.

The explanation may be, as another policeman says: "They're utterly reliable, in hardware, software, service and support."

At first sight, Microdata's market seems to be in "simple" data handling, but the reason for its success is that it has taken normal management tasks and written software that will run very fast and efficient routines.

An example of this is in a large major British aerospace company.

"Among other things we use the machines (a Reality and a Sovereign) for factory planning and factory information control. We've found that the machines and the operating system and software are highly productive in getting systems and software up and running quickly." a representative says.

"As an ex-mainframe man, I am very impressed with the way Microdata keeps up with the latest technical developments and techniques."

Others have their reservations. Tom Kelly of the London Borough of Newham says that overall he's extremely pleased with his Reality and Sequoia machines and back-up support, but thinks that the company is now in a position where, if it isn't careful, it could damage its present excellent reputation.

Kelly thinks one of Microdata's problems will be that smaller local authorities may go for a Microdata supermini and then try to treat it as a mainframe.

"They don't have the experience and some of them aren't

Network is the jewel

McDONNELL Douglas acquired Tymshare computer services company in April 1984 for just over $300 million. What it got for this was a range of systems for knowledge engineering, financial services – including an international banking system, project control and resource control and resource management. But the jewel is Tymnet, one of the world's largest public data switching networks.

Tymnet data network was launched in 1969 to deliver Tymshare's remote computing services. The company started selling capacity on the network in 1972 and by 1974 Tymnet was supporting the traffic of 30 companies. In 1977 Tymnet became a regulated common carrier in the US.

Tymnet provides local data distribution using microwave broadcasting in 46 US cities, and is currently installing 27 satellite earth stations to provide high speed links to supplement the existing terrestrial network.

Today, Tymnet provides data communications for about 600 organisations in the US. In addition there are a large number of private networks set up by the company, and international access to more than 50 countries.

Tymnet designs and manufactures the computers that are used as intelligent communications processors. The operating system Isis (Internally Switched Interface Systems) maps the characteristics, codes and protocols assembled in each node on a network.

In February 1985, Tymnet put together an agreement with Japanese electronics giant Marubeni to build a Tymnet style public data network in Japan. Tymnet is the first US company to enter the Japanese value added network services market.

The new company, Japan Network Services, has lots of ready made customers in the shape of minority shareholders in the venture, such as Fuji Bank, Nissan Motors, Seiko Electronics and Nippon.

Microdata is busy at the moment integrating Tymnet technology into its range of minicomputers.

Jerry Causley, senior vice president of McDonnell Douglas Information Systems International, and formerly managing director of Microdata in the UK, says this type of full function networking will provide capabilities previously unheard of in the Pick operating system arena.

Tymnet technology is important to the strategy of the McDonnell Douglas Information System Group. But even more important is the Tymnet network itself. Having a value added network is what gives McDonnell Douglas the ability to support industry level solutions.

Gary Leibl, vice president of the International Systems Group, says he is very enthusiastic about Tymnet. "It is growing fast, is well managed and a contemporary concept."

Exclusive ownership of the network is important to Liebl because he does not want to be dependent on any outside suppliers.

Tymnet will be crucial to McDonnell Douglas international ambitions. "One of the top priorities I've given Jerry is to position Tymnet outside the US." The UK will become the base of Tymnet operations in Europe.

willing to listen. And if the systems don't come up to expectations Microdata will be blamed. It should watch that."

He feels there could also be two other problems.

"There are systems that can be limited by disc transfers. The block size, 512 bytes exactly, is limiting. And there have been problems with dumping data to tape.

"Theoretically, you can let the system run for 12 hours from the end of the day, but there are examples where staff have to come in at 10pm and again at 4am."

Nevertheless, he's very satisfied with his installation, and shares the view of most local authority users that there's nothing in that sector of the market to touch them.

Newham, Kelly points out, is traditionally an ICL site. "But when we wanted minis to handle non-corporate work, ICL offered a TME system, which we didn't want, so we looked at the competition and chose Microdata.

"We use the machines for smaller jobs and leave the mainframes free for major stuff, and they're excellent at that.

"We're particularly impressed by Viewbase, which is up and running. And we're looking forward to version i.1 of All (Application Language Liberator)."

Local authorities, in particular, seem to adapt to the Microdata installations easily and quickly.

According to Jack Copeman of the Norfolk and Norwich Joint Computer Department: "If you want one single reason why Microdata caught on in this market, it's that when direct labour came in they were the only people who could provide a management system that worked.

Police forces find Microdata reliable.

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"From then on it was a matter of compatibility, because local authorities' computers communicate with each other much more than people realise."

But Kelly adds a final word of warning: "Now that Microdata is going into superminis it'll really have to change its attitudes and start thinking big."

Andy McElroy is a freelance journalist.

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